Amendments to the Specification:

Please replace the paragraph on page 1, lines 14-25 with the following amended paragraph:

In conventional multifunctional technology, an image process has a plurality of intensity conversion methods and selects one of the intensity conversion methods based upon a type of original documents. In this regard, Japanese Patent Application Hei 9-224155 discloses an image processing apparatus which the above described technology. However, the above prior art technology take only the intensity characteristic into account for the intensity correction and fails to address any other image characteristics such as sharpness and regional differences. The regional differences are based upon the characteristics of the relative location in the image. For example, for image intensity, an outline portion of the image that outlines an image should be differently processed from a non-outline portion of the image that is included in the outline portion. Furthermore, sharpness of the image should be also taken into account. A combination of the above additional factors should be balanced in order to reproduce a high-quality image.

Please replace the paragraph on page 3, lines 30-31 with the following amended paragraph:

FIGURE 8 is a pair of tables that shows a combination of processes to be performed based upon the image mode from the operation unit according to the current invention.

Please replace the paragraph on page 4, lines 12-31 with the following amended paragraph:

Referring now to the drawings, wherein like reference numerals designate corresponding structures throughout the views, and referring in particular to FIGURE 1, a block diagram illustrates a preferred embodiment of the image processing apparatus according to the current invention. The image processing apparatus 10 includes an image scanning unit ~~1~~11, a scanning

correction unit 2, a sharpness adjustment unit 3, an intensity adjustment unit 425, a gradation control unit ~~5~~26, an image generation unit 6, an operational mode setting unit 7 and a control unit 8. In general, the image scanning unit 1 further includes an image reduction optical component, a contact sensor and a color or monochromatic scanner. The image information that has been scanned by the image scanning unit ~~1~~11 is converted into electrical signals. The scanning correction unit 2 corrects scanning error or distortion in the converted electrical signals of the scanned image. For example, a fluctuation in light from a lamp is corrected. The sharpness adjustment unit 3 performs signal correction for generating a sharp or soft finish in an output image. The intensity adjustment unit 425 performs contrast adjustment on the original image to generate a weak or dark image. The gradation control unit ~~5~~26 processes the intensity level of the scanned image to print an image on paper in gradation. The image generation unit 6 is either an electrostatic photo processing unit or an ink jet printer in color or black and white.
The operational mode setting unit 7 allows a user to specify an image reproduction mode and other adjustment options. Based upon the specified image reproduction mode and the adjustment options, the control unit 8 controls the corresponding function blocks.

Please replace the paragraph beginning on page 7, line 17 and ending on page 8 line 30 with the following amended paragraph:

A first function of a video ~~path~~ bus control unit 29 is to control the signals indicative of a scanned image. When the signal is 8-bit after the A/D conversion via the CCD, the ~~path~~ bus control is performed with the same bit width. Through the ~~path~~ bus control, an external application interface 30 controls an external application such as a scanner application program. Via a memory interface unit 31, data is stored in or read from a scanner buffer memory. A second function of the video ~~path~~ bus control unit 29 is to control a data ~~path~~ bus after the image data has been processed. During the image processing, the bit width is converted to either binary or a plurality of multi values. To accommodate the bit width of the data bus, the process controls the data. Although the video path control unit 29 controls

input and output signals from an external application via the external application interface unit 30, output signals such as a fax transmission and a print out from a personal computer are implemented with binary image data. Via the memory interface unit 31, data is stored in or read from a printer buffer memory. The data is transmitted according to a number of bits in the writing unit.

Please replace the paragraph on page 8, lines 1-15 with the following amended paragraph:

Now referring to FIGURE 3, a diagram illustrates one preferred embodiment of a sharpness adjustment unit 3 or specified filter process 2 according to the current invention. In general, the image data is processed based upon the information on edges and intensity from a space filter process unit. After the scanned image data is corrected, the corrected image data is grouped into a plurality of lines of data in a line memory unit 33 to form an image matrix 34 for accessing the image data on a two-dimensional basis. A front filter 35 filters the image matrix data to primarily remove aliasing distortions due to the A/D conversion and unnecessary frequency bands. After the above distortions are removed from a wide range of the signal frequencies, an edge detection unit 36 performs an edge detection process on the image data. A set of a first MTF correction unit 37a, a second MTF correction unit 37b and a third MTF correction unit 37c also performs a main filter process on the image data. To distinguish outline or edge portions of the image data from non-outline or non-edge portions of the image data, an edge detection unit 36 detects valid edges within the image. Since the front filter 35 has removed noise, a majority of the detected edges is valid. However, only outlines are selected from the detected edges.

Please replace the paragraph on page 8, lines 17-29 with the following amended paragraph:

The above main filter process includes an emphasis filter group ~~for~~ located in the MTF correction units 37a, 37b and 37c, an original data pass filter after the front filter process and a smoothing filter. The original data pass filter is also used for determining intensity information on unprocessed pixels. The emphasis filter applies a plurality of filter coefficient to the same image in parallel. To select one of the processed results, the intensity information is used by the intensity process unit 41 to define a strong emphasis result. Using the emphasis filter result, a 1/N weak correction unit 38 applies a 1/Nth correction amount to generate a weak emphasis result. A smooth process unit 39 further filters out a wide range of the input data to generate smoothly transitioned pixel positions by effectively eliminating the noise. Among the strong emphasis result, the weak emphasis result and the smoothed result, an edge processing unit 40 applies an appropriate process based upon an edge signal that is indicative of an outline portion. Based upon the edge signal and the image reproduction mode from the operational unit, the selection path is switched.

Please replace the paragraph beginning on page 8, line 31 and ending on page 9, line 18 with the following amended paragraph.

Now referring to FIGURE 4, a diagram illustrates a selection criterion for the MTF correction process according to the current invention. The emphasis filter group unit or intensity process unit 41 receives the front filter result as an input from the front filter 35. Based upon the threshold value in the input data, the output selection value is determined. In the preferred embodiment, there are two predetermined threshold values for the intensity, and these threshold values include a first threshold value TH_L and a second threshold value TH_U. When the input intensity of a current pixel is within a range from 0 to the first threshold value TH_L during the emphasis process, the first MTF correction process is selected. Similarly, when the input intensity of a current pixel is within a range from the first threshold value TH_L

to a second threshold value TH_U during the emphasis process, the second MTF correction process is selected. Lastly, when the input intensity of a current pixel is within a range from the second threshold value TH_U to a maximal value MAX during the emphasis process, the third MTF correction process is selected. The MTF process is selected based upon the relation between the importance of the information and the intensity level. That is, low intensity areas that are smudges are not emphasized while low intensity areas that are text or characters are emphasized. Originally high intensity areas are not emphasized since there is a sufficient difference in intensity between the high intensity areas and the surrounding areas. The above described predetermined threshold values TH_L and TH_U determine which areas are emphasized and how much emphasis is made, and the two threshold values TH_L and TH_U are arbitrary determined.

Please replace the paragraph on page 9, lines 20-32 with the following amended paragraph:

Now referring to FIGURE 5, a diagram illustrates the intensity adjustment process 4 according to the current invention. Based upon the edge information, one of two intensity correction tables T1 and T2 is selected. The edge information includes the intensity notch that is inputted via the operation unit. The intensity correction tables T1 and T2 respectively contain the intensity conversion characteristic data for the outline portions and the non-outline portions. The first intensity correction table T1 is used to regenerate sharp transitions in intensity for outline portions. On the other hand, the second intensity correction table T2 is used to regenerate smooth transitions in intensity for non-outline portions. In summary, the intensity correction is performed on the image data that has been processed based upon the edge information from the above described sharpness adjustment process. As described above, the intensity correction for the sharp transition is performed on the outline portions while that for the smooth transition is performed on the non-outline portions.